

MITRACARPUS (RUBIACEAE),
A GENUS NEW TO FLORIDA AND
EASTERN NORTH AMERICA

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The Rubiaceae has recently been seen as composed of twenty-nine tribes (Verdcourt, 1958), of which the *Spermacoceae* is represented in the southeastern United States by five genera: *Richardia*, *Diodia*, *Borreria*, *Spermacoce*, and *Ernodea*. To this assembly must now be added the genus *Mitracarpus*, represented by *M. villosus* (Sw.) DC., a species widespread in tropical America.

Members of the tribe *Spermacoceae* are separated by their modes of fruit dehiscence, which are remarkably diverse considering the presumed closeness of the associated genera. *Richardia* capsules split into three, and *Diodia* (including *Diodella*) into two indehiscent one-seeded cocci. *Borreria* capsules separate into two one-seeded halves, with each half longitudinally dehiscent on the inner face. *Spermacoce* capsules divide slightly unequally, the common partition remaining attached to one half, which thereby remains indehiscent, while the second half is open on the inner face. *Ernodea* forms a thin-fleshed two-seeded indehiscent berry.

Mitracarpus is sharply distinguished from these members of the tribe *Spermacoceae*, as well as from all other Rubiaceae, by the presence of capsules that open by circumscissile dehiscence, exposing the two single-seeded locules. The detached distal end of a matured fruit, with its four persistent calyx lobes, two very much larger than the others, resembles a fancied child's cap, sporting two prominent donkey ears. The seeds are 1 mm long, each bearing an x-shaped groove in place of the longitudinal sulcus of the typical rubiaceous "coffee-bean" seed; this groove divides the placental surface of the seed into four rounded and nearly equal lobes.

In the continental United States *Mitracarpus villosus* has been known previously from southern Texas (Correll & Johnston, 1970, as *Mitracarpum hirtum*). In the West Indies and in Central and tropical South America it is widespread and often weedy. It has now appeared in central peninsular Florida: dry open sandy roadside, along Fla. 40, near Central Lookout Tower, Ocala National Forest, 24 miles east of Ocala, Marion County. *L. Baltzell* 4494, 5 Nov, 1972. (FLAS 118631, 118632). The population consists of many thousands of individuals, extending for several miles on the Citronelle sand of a pipeline right-of-way through sand pine (*Pinus clausa*) scrub. A second collection, *Ward* 8870, has been distributed to the following institutions: BH, BM, C, FSU, GA, GH, LAF, LSU, MISSA, MC, NCU, NLU, NY, US, USF, VDB.

The plants are erect annuals, to 5 dm in height, and are usually sparingly branched. The stems are very lightly pubescent, and the leaves, especially on the margins and the veins beneath, are scabrous. The leaves are sessile, narrowly ovate and entire, with the veins deeply impressed above. Each node above the mid-point of the stem bears a dense glomerulate inflorescence; these develop in an upward succession from July into November. The flowers are very small, white, 4-petaled, with scarcely exerted anthers, and give rise to numerous capsules with the persistent dimorphic calyx lobes and circumscissile dehiscence characteristic of the genus. Without careful examination the plants may readily be passed as exceptionally tall and erect specimens of *Borreria laevis* (Lam.) Griseb., a common species of somewhat moister habitats.

The Ocala population represents one of an aggregation of forms that have been given such additional names as *Mitracarpus hirtus* (L.) DC., *M. rude* Benth., *M. diffusus* (Willd.) Cham. & Schlecht., *M. bakeri* Urban, and *M. simplex* Rusby. There seems to be no present way to determine whether this grouping represents one species or more than one. Such authorities as Schumann (1888, 1891) and Standley (1930, 1931a, 1931b) have chosen to

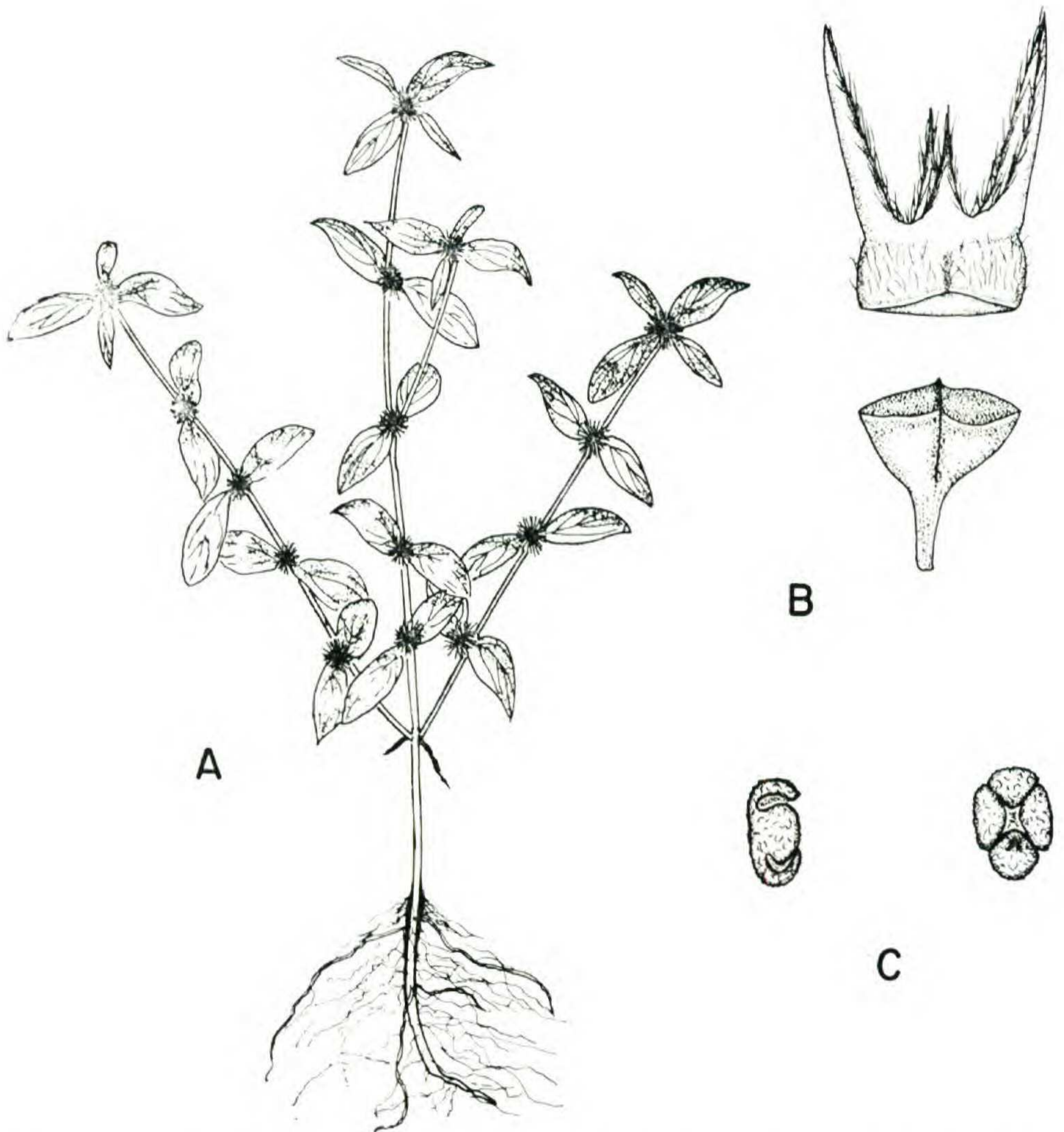


Fig. 1. *Mitracarpus villosus*. A, habit $\times \frac{1}{4}$; B, capsule, with circumscissily dehiscent lid bearing four persistent calyx lobes $\times 10$; C, seed, in side view (left) and placental view (right) $\times 10$.

consider the complex as consisting of a single species, while Steyermark (1972) has strongly indicated that in Venezuela *M. diffusus*, at least, deserves recognition. But in any event the Florida collections do not appear separable from the widespread entity of the New World tropics.

Although there are representations to the contrary, the correct name of this plant is *Mitracarpus villosus* (Sw.) DC. (1830), with the basionym *Spermacoce villosa* Swartz (1788). The original account was written by Swartz fol-

lowing several years of active field work in Jamaica, and his description, although brief, is appropriate for the present species and is supported by specimens examined by Rendle (1936) and others.

But *Mitracarpus hirtus*, of varying authors, has been used with almost equal frequency. Although not fully stated by its advocates, a case may be made that this combination is prior and correct. The earliest name attributed to this group is *Spermacoce hirta* Linnaeus (1762), used in describing a plant from Jamaica. Swartz's 1788 description of *S. villosa* Sw., although also based upon Jamaican plants, was independent. In 1791 Swartz described still a third Jamaican collection, again using *Spermacoce hirta*; although he referred to Linnaeus in noting that this latest species had been (in translation) "accidentally confused and mixed" by Linnaeus with Swartz's earlier *S. villosa*, Swartz's 1791 description was wholly original and it is conceivable that he thought of his usage of *hirta* as being new. DeCandolle in 1830 made the combination *Mitracarpus hirtus* (as *hirtum*), basing his name on *S. hirta* Swartz, not on *S. hirta* Linnaeus.

If *Spermacoce hirta* Swartz were indeed to be taken as a new name, then DeCandolle's *M. hirtus* would be illegitimate since based on a later homonym, and the correct name would be *M. villosus* (Sw.) DC. But if it were seen that DeCandolle's citation of Swartz was an indirect reference to Linnaeus, then *M. hirtus* (L.) DC. would be legitimate and prior. Fortunately, this decision is moot, for the morphology of the types and the particulars of the descriptions provide a definite answer.

Specimens of at least two entirely different rubiaceous genera are involved. Linnaeus's original description of *Spermacoce hirta* was moderately lengthy but wholly ambiguous, and the surviving specimen in the Linnaean Herbarium (125.4) seems in microfiche to be immature; nevertheless the prominent petioles and other characteristics of the Linnaean specimen, as described by Steyermark (1972),

are definitely not those of the plant known as *M. villosus*. Swartz in 1791 gave a full and detailed description of his own *S. hirta*, and characteristics of the stamens ("exserta"), the calyx ("4-dentatus, brevissimus"), and the seeds are in sharp contradiction with those of *M. villosus*; indeed, Swartz's 1791 plant is most suggestive of *Hemidiodia ocymifolia* (Willd.) Schum. in Mart., a tropical adventive to which Linnaeus's specimen may also belong. Thus, whatever the date and authorship attributed to *M. hirtus*, its irrelevance to the problem at hand leaves *M. villosus* (Sw.) DC. without challenge.¹

¹In a publication received too recently for inclusion in the above discussion, B. Verdcourt (Kew Bull. 30:317-322. 1975) discusses in full detail this matter of the correct name for the common species of *Mitracarpus*. He is personally inclined to the view that DeCandolle's reference to Swartz was indeed an indirect but clear reference to *Spermacoce hirta* L. and that the correct name should be *M. hirtus* (L.) DC. He saw the chain of attribution as running from DeCandolle's citation of *Spermacoce hirta* Sw., through Swartz's reference to Reichard's *Systema Plantarum* (1:291. 1779), to Browne's *Civil and Natural History of Jamaica* (141. 1756), and thence forward in time to Linnaeus (1762).

Fortunately the improbabilities of this indirect attribution need not be argued, for Verdcourt reluctantly defers to the judgment of his consultants, the skilled Linnaean scholars J. E. Dandy and W. T. Stearn, who maintain that DeCandolle's phrasing expressly excluded the type of *Spermacoce hirta* L., a circumstance that would compel the use of *Mitracarpus villosus* (Sw.) DC.

Verdcourt makes two other points germane to the present discussion, both less than incontestable, but in the opinion of the present writer, probably valid. First, he believes the specimen upon which *Spermacoce hirta* L. is based *not* to be the one discussed above and by Steyermark (1972), but to be a second sheet in the Linnaean Herbarium (125.8). Linnaeus wrote "hirta" upon his first sheet (125.4), suggesting to Steyermark and the present writer that this specimen represented his type, while he wrote "hispida" upon the second (125.8), a reference to *Spermacoce hispida* L., an Asian species in no other way involved with this problem. That Linnaeus labeled this second sheet in careless haste is implied by the facts that (1) the specimen is a true *Mitracarpus*, apparently the common New World species, (2) *Spermacoce hispida* L. is not known in Jamaica or elsewhere in the New World, and (3) the sheet also bore in Linnaeus's

Mitracarpus has been spelled in two ways. Schultes, who established the genus in 1827, spelled the name *Mitracarpum* in his text. Such authors as Schumann (1888, 1891), Urban (1913), Standley (1930, 1931a, 1931b), Rendle (*in* Fawcett & Rendle, 1936), Alain (1962), Hepper (*in* Hutchinson & Dalziel, 1963), Adams (1972), and Steyermark (1972), interpreted the genus to be masculine, and spelled it *Mitracarpus*. But Chamisso & Schlechtendal (1828), DeCandolle (1830), Grisebach (1864), and Hooker (*in* Bentham & Hooker, 1873), as well as such recent writers as Verdcourt (1958) and Correll & Johnston (1970), have seen the genus as neuter, and have used *Mitracarpum*.

Dr. William J. Dress has adroitly resolved for the writer this question of generic gender and spelling. He notes that the original text by Schultes mentions the genus only in the accusative case (p. 120), and thus Schultes's *Mitracarpum* could be either neuter or masculine since the accusative ending for both would be the same. But in Schultes's index (p. 399), a listing in the nominative case, Dr. Dress observes the entry to be *Mitracarpus*. Since the original author's intent as to gender thus seems to be

hand a "3" which was the species number he assigned to *S. hirta* L., and a "Br" by which he noted he had obtained it from Patrick Browne who had collected only in Jamaica. This second sheet, if seen as the type, as now appears reasonable, makes the decision critical as to whether DeCandolle was indirectly referring to Linnaeus's *Spermacoce hirta*.

Second, Verdcourt has called attention to the illegitimacy of *Mitracarpus villosus* (Sw.) Cham. & Schlecht., a combination used by Steyermark (1972) and others including the present author. Chamisso & Schlechtendal (1828) did antedate DeCandolle by two years, and DeCandolle credited them with the combination, but in their treatment of *Spermacoce villosa* Sw. they merely recorded its placement in *Mitracarpus*, without indicating that a particular combination was to be used, a contravention of Art. 33 of the International Code. Specimens of Ward 8870 bearing this invalid combination have been distributed and should now be corrected to *Mitracarpus villosus* (Sw.) DC.

without ambiguity, this latter spelling should be used, and the epithets should of course agree.²

The writer is grateful to Dr. Dress for assistance with orthographic matters, to Miss Vicki Rosario for the illustration, and to Mr. and Mrs. L. M. Baltzell, Leesburg, for their indefatigable efforts to understand and collect the flora of central Florida. This paper is Florida Agricultural Experiment Journal Series No. 5504.

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²After the present manuscript was accepted for publication the writer was delighted to come upon an elegant solution of this same problem, by W. R. Anderson (Taxon 20:643. 1971). From the text alone Anderson reasoned that Schultes's use of "Mitracarpum" could have been either masculine or neuter, but not feminine, while his use of the modifying participle "crescentem" ("growing") could have been either masculine or feminine, but not neuter. Thus Anderson was led, by a logic parallel to but independent of Dress's, to the identical conclusion, that Schultes's genus was thought of by its author as masculine. It would seem now beyond dispute that this genus in the nominative should be spelled *Mitracarpus*!

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